

PARKAS, L.G.; ENOLEZALOVA, J.

Surgical difficulties in hypospadias. *Magy. sebészeti* 7 no.5:  
361-370 Oct 54.

1. A prágai Plasztikai Sebészeti Klinika (igazgató: dr. F.Burian  
prof.) közleménye.  
    (HYPOSPADIAS, surg.  
        urethroplasty)  
    (URETHRA, surg.  
        plastic in hypospadias)

DOLEZALOVA, Jarmila, MUDr.

Shock in burns in pregnancy. Cesk. gyn. 19 no.5:299-301  
Sept 55.

1. Klinika plast. chir., prof. Dr. Buriana, oddeleni pro  
lechu popalenin.

(PREGNANCY, complications,  
burns with shock)

(SHOCK, in pregnancy,  
caused by burns)

(BURNS, in pregnancy,  
with shock)

KRYSPIN, J.; DOLEZALOVA, J.

Electric conductivity of transplanted human skin in the course of healing. Acta chir.plast. 2 no.3:241-246 '60.

1. Laboratory of Plastic Surgery, Czechoslovak Academy of Sciences, Prague (Czechoslovakia). The Burns Unit of the Clinic of Plastic Surgery, Charles University, Prague. Director: Academician F. Burian.  
(SKIN TRANSPLANTATION)

PAVKOVA, Libuse; DOLEZALOVA, Jarmila

Direct determination of homotransplantation antibodies in man.  
Folia biol. 7 no15:364-368 '61.

1. Plastic Surgery Laboratory, Czechoslovak Academy of Sciences and  
Plastic Surgery Clinic, Burns Department, Praha.  
(SKIN TRANSPLANTATION immunol) (ANTIGEN ANTIBODY REACTIONS)

HAJEK, S.; GREGORA, Z.; STEFAN, J.; KRAL, Z.; CHYBA, J.; RUZICKA, L.;  
DOBRKOVSKY, M.; DOLEZALOVA, J.

Analysis of 147 fatal thermic injuries. Acta chir. plast. 5  
no.3:193-204 '62.

1. Medical Faculty of Hygiene, Charles University, Prague  
(Czechoslovakia) Department of Pathology and Forensic Medicine  
Director: Doc. J. Stols, M.D. Department of Health Organization,  
Medical Faculty of Hygiene, Prague Director: Prof. F. Blaha,  
M.D. The Burns Unit of the Clinic of Plastic Surgery, Charles  
University, Prague Directors: Academician F. Burian.  
(BURNS) (MORTALITY) (PATHOLOGY)  
(ACCIDENT PREVENTION)

PAVKOVA, L.; DOLEZALOVA, J.

Immunological changes in the serum of severely burned subjects. Rozhl. chir. 43 no.5:337-347 My'64

1. Laborator plastické chirurgie CSAV (Československé akademie věd) v Praze (předseda: akademik F.Burian) a Klinika plastické chirurgie lékařské fakulty KU [Karlovy university] v Praze (předseda: prof. dr. V.Karfič).

PAVKOVA, L.; DOLEZALOVA, J.; KONICKOVA, Z.

Immunological changes in the serum of patients with severe burns. Rev. czech. med. 11 no.2:91-103 '65

1. Laboratory of Plastic Surgery, Czechoslovak Academy of Sciences and Medical Faculty of Hygiene, Charles University (Director: Academician F. Břian); Clinic of Plastic Surgery, Department of Burns (Director: Prof. V. Karfík, M.D.)

PROCHAZKA, Zdenek; DOLEZALOVA, L.

Experimental examination of the effect of the wook impregnation compound NaPCP on the health of swine. Veterinarni medicina 6 no.12:903-908 '61.

1. Vyzkumny ustav veterinarni, Ceskoslovenska akademie zemedelskych ved, Brno - Medlanky.



DOLEZALOVA, Marie; KUCERA, Jaroslav, Zaslouzily Ucitel.

Training stations of public health schools in the Region  
of Hradec Kralovy. Cesk. zdravot. 5 no.2:106-109 Feb 57.

(PUBLIC HEALTH, educ.  
train. stations for students in Hradec Kralovy  
Region (Cz))

BAKCWA, S.; DOLEZALOVA, M.; DEPOWSKI, M.

Primary generalized mycosis (*Candida albicans*) diagnosed intravital in a premature infant. *Pol.tyg.lek.* 19 no.18:679-681 27 Ap '64.

1. Z Kliniki Położnictwa i Chorob Kobiectych Akademii Medycznej (kierownik: prof. dr. S. Schwarz); z Kliniki Chorob Zakaznych Akademii Medycznej (kierownik: prof. dr. W. Fejkiel) i z Zakladu Anatomii Patologicznej Akademii Medycznej w Krakowie (kierownik: prof. dr. J. Kowalczykowa).

DOLEZALOVA, Miloslava  
SURNAME, Given Name

Country: Czechoslovakia

Academic Degrees: not given

Affiliation: Biologic Institute, Czechoslovak Academy of Sciences,  
Department of Phytopathology, Prague (Biologicky Ustav CSAV  
oddeleni fytopatologie) (CSAV; Ceskoslovenska Akademie Ved)

Source: Prague, Biologia Plantarum, Vol 3, No 4, 1961; pp 265-269

Data: "On the Influence of Temperature Variations on the Occurrence  
of Tobacco Mosaic Virus (TMV) in Tomato Plants"

DOLEZALOVA, Miloslava  
POZDENA, Jiri

GPO 981643

DOLNIZALOVA, Vlasta, MUDr

Pemphigus oculi. Cesk. oftih. 10 no.4:246-249 Aug. 54.

1. X očního oddelení KUMK Ceske Budejovice. Prednosta: prim. MUDr  
Jaroslav Pitter.

(EYE, diseases,

pemphigus)

(PEMPHIGUS,

eye)

MEGIR, M., MUDr.; IQLEZALOVA, V., MUDr.

Epidemiological observations in nurseries. Cesk. pediat. 11 no.7:  
527-530 July 56.

1. Ustav pro peci o matku a dite, reditel prof. Dr. J. Trapl,  
vedouci pediatr. vyskumu doc. Dr. K. Kubat.  
(COMMUNICABLE DISEASE, in infant and child,  
epidemiol. in nurseries (Cs))

DOLEZALOVA, V.

Atropinization prior to skiascopy. Cesk. ofth. 13 no.6:453-455 Dec 57.

1. Oční oddělení ONM v Mariánských Lázních, přednosta prim. V. Dolezalova.  
(ATROPINE, ther. use  
premed. in skiascopy in child., comparison with homatropine  
& contra indic. (Cs))  
(RETINA,  
skiascopy in child., comparison of atropine with homatropine  
premed. (Cs))

DOLEZALOVA, V.

COUNTRY : CZECHOSLOVAKIA  
CATEGORY : Pharmacology and Toxicology. Cholinergic Agents  
ABR. JOUR. : RZnBiol., No. 5 1959, No. 23151  
AUTHOR : Dolezalova, V.  
INST. :  
TITLE : Labotropin, a Synthetic Drug for Dilatation of  
the Pupil  
ORIG. PUB. : Ceskosl. ofthalmol., 1958, 14, No 3, 207-209  
ABSTRACT : Labotropin is similar to atropine as to potency  
of action, but as to duration of action it is  
inferior to it. Labotropin is well tolerated by  
patients.

Card: 1/1

DOLEZALOVA, V.

Preventive eye examination in pre-school children. Cesk. ofth. 15  
no.4:244-247 Aug 59.

1. Oční oddelení OUMZ Mariánské Lázně, prednosta prim. MUDr. Vlasta  
Dolezalova.  
(EYE DISEASES, prev. & control)



DOLEZALOVA, Vlasta.

Damage to the retina caused by solar burn. Cesk. ofth. 17 no.3:195-197  
My '61.

1. Očni oddeleni UNZ-Marianske Lazne, prednosta MUDr. Vlasta Dolezalova.

(RETINA wds & inj) (SUNLIGHT)

DOLEZALOVA, V.; BRADA, Z.

The host-tumor relationship. VI. Release of proteins by tumor cells in vitro. Neoplasma 8 no.5:501-508 '61.

1. Onkologisches Forschungsinstitut, Arbeitsstelle Tschechoslowakei.  
(NEOPLASMS exper) (PROTEINS chem)

VOBECKY, J.; PESEK, J.; MACKU, M.; technicka spoluprace DOLEZALOVA, V.

Our experience with the use of a live vaccine against infantile paralysis during the spring of 1960. Cesk. epidem. 10 no.6:404-410 N '61.

1. Krajska hygienicko-epidemiologicke stanice v Brne.

(POLIOMYELITIS immunol) (VACCINATION in inf & child)

DOLEZALOVA, Vlasta

Metastatic carcinoma of the choroid. A case report contribution.  
Česk. oftal. 18 no.1:70-72 Ja '62.

1. Oční oddělení OUNZ Mariánské Lázně, přednosta MUDr. Vlasta  
Doležalová.

(CHOROID neoplasms)

(ADENOCARCINOMA case reports)

DOLEZALOVA, V.

Hypotrophic fetus and newborn infant. Cesk. pediat. 18 no.9:  
830-836 S '63.

1. Ustav pro psci o matku a dite v Praze, reditel doc. dr.  
M. Vojta, vedouci pediatrickeho useku doc. dr. K. Polacek,  
CSc.

(FETAL DISEASES) (INFANT, NEWBORN, DISEASES)  
(INFANT, PREMATURE, DISEASES) (INFANT MORTALITY)  
(MATERNAL-FETAL EXCHANGE) (PREGNANCY TOXEMIAS)

DOLEZALOVA, V.

Prevention of strabismus. Cesk. oftal. 19 no.1:43-46 Ja '63.

1. Očni oddeleni nemocnice s poliklinikou v Martanských Lázních,  
prednosta MUDr. V. Dolezalova.  
(STRABISMUS)

DOLEZALOVA, V.

Hand-Schuller-Christian syndrome; (case report contribution).  
Cesk. oftal 19 no.6:421-425 N°63

A. Boni oddl. nemocnice a poliklin. v Mariánských Lázních,  
vedoucí MUDr. V. Dolezalova.

★

BRUNECKY, Z.; DOLEZALOVA, V.

Theoretical basis of immunoelectrophoresis. Cas.lek.cesk.103.  
no.1:18-22 3 Ja'64.

Evaluation of the results of immunoelectrophoresis. Hbid:22-26

L. I. detska klinika lekarske fakulty UJEP v Brne; prednosta:  
prof.dr. Z.Brunecky.

\*



DOLEZALOVA, V.; BRADA, Z.; KOCEIT.A.

Host-tumour relationship . XII. Proteins of normal rat serum. Neoplasma 11 no.2:151-163 '64

1. Cancer Research Institute, Department of Biochemistry, Brno, Czechoslovakia.

DOLEZALOVA, V. ; BRADA, Z. ; KOCEIT, A.

Host - tumour relationship. XIII. Proteins, mucoproteins and their saccharide components in the serum and ascitic fluid of rats in the course of growth of Yoshida Ascitic sarcoma. Neoplasma (Bratisl.) 11 no.3:257-268 '64

1. Cancer Research Institute, Department of Biochemistry, Brno, Czechoslovakia.

DOLEZALOVA, V.

Devices for determining visual acuity in small children.  
Cesk. oftal. 20 no.1:59:62 Ja'64.

1. Oční oddělení nemocnice z poliklinikou v Mariánských  
Lázních; vedoucí: MUDr. V.Dolezalova.

\*

BRUNECKY, Z.; DOLEZALOVA, V.

Immunoelectrophoretic determination of serum proteins in colostrum and human milk. Cesk. pediat. 19 no.5:385-398 My'64

1. I. detska klinika lekarske fakulty UJEP [University J.E. Furkyne) v Brne; prednosta: prof. dr. Z.Brunecky.

BRUNECKY, Z.; DOLEZALOVA, V.

Determination of the effect of breast feeding on the serum protein level in newborn infants. Cesk pediat. 19 no.10:873-879 0 '64.

1. I detska klinika lekarske fakulty UJEP v Brne; pre nosta prof. dr. Z. Brunecky..

DOLEZALOVA, V.

Incidence of glaucoma in relation to climatic conditions. Cesk.  
oftal. 20 no.4:308-310 J1'64

1. Oční oddělení nemocnice s poliklinikou v Mariánských;  
vedoucí: MUDr. V.Doležalová.

DOLEZALOVA, V.; BRADA, Z.; KCCENT, A.; HEKELOVA, J.

Host--Tumour relationship..XV. Comparison of Proteins in the blood and ascites serum of rats with Yoshida ascites tumour. Neoplasma (Bratisl.) 11 no.4:361-369 '64.

1. Cancer Research Institute, Department of Biochemistry, Brno, Czechoslovakia.

DOLEZALOVA, V.; BRUNECKY, Z., prof., dr.

The quantitative composition of proteins of colostrum and human milk. Cesk. pediat. 20 no.6:513-524 Ja'65.

1. Ustav pro dalsi vzdelavani strednich zdravotnickych pracovníku v Brne (reditel: MUDr. L. Dobes) a I. detska klinika lekárske fakulty University J.E. Purkyně v Brne (prednosta: prof. dr. Z. Brunecky).



DOLEZALOVA, V.

Confirmation of Kubik's prism fusion test. Cesk. oftal 21 no.2:  
107-110 Mr '65.

1. Ooni oddeleni nemocnice s poliklinikou v Mariánských Lázních  
(vedoucí: MUDr. V. Dolezalova).

DOLEZALOVA, V.

Clinical differences between hypotrophic children and premature children during the first 4 weeks of life. Differential diagnosis. Cesk. pediat. 20 no.6:504-512 Ja'65.

1. Ustav pro paci o matku a dite v Praze (zat. reditel: doc. dr. J. Horsky, vedouci pediatrickeho usku: doc. dr. K. Polacek, CSs.).

LACHOWICZ, Tadeusz; DOLEKALOWA, Marta

Bacteriophage typing of staphylococcal strains. Arch.immun.ter.  
dow. 7 no.4:679-686 '59.  
(STAPHYLOCOCCUS immunol.)

*DOLEŻALOWA, Marta*

EXCERPTA MEDICA Sec 9 Vol 13/11 Surgery Nov 59

5486. THE BACTERIOLOGICAL PICTURE AND SENSITIVITY OF MICRO-ORGANISMS IN VITRO TO ANTIBIOTICS IN PURULENT SURGICAL INFECTIONS - Obraz bakteriologiczny i wrażliwość drobnoustrojów 'in vitro' na antybiotyki w ropnych zakażeniach chirurgicznych - *Doleżalowa M. and Zasowski A.* Zakt. Mikrobiol. Lek. A.M., Kraków; II Klin. Chir. A.M., Kraków - POL. PRZEGL. CHIR. 1959, 31/2 (129-144) Tables 10

The investigation concerned the sensitivity of isolated strains of bacteria to penicillin, streptomycin, chloramphenicol, chlortetracycline, and oxytetracycline. From the material obtained from purulent infections, 457 strains of bacteria were cultured, including 242 strains of staphylococcus, 64 of streptococcus and 106 of Gram-negative bacteria of various species. The strains of staphylococcus exhibited sensitivity to penicillin in 21.5% of cases, to streptomycin in 73.8%, to chloramphenicol in 87.3%, to chlortetracycline in 80.6% and to oxytetracycline in 83.1%. Out of the 64 strains of streptococcus cultured, 54 were tested for antibiotic sensitivity. These exhibited the greatest sensitivity to chloramphenicol (79.6%), to penicillin (75.9%), to oxytetracycline (75.9%) and the least to streptomycin (24%). Micro-organisms from the Gram-negative group exhibited the greatest sensitivity to chloramphenicol (54.5%), with the exception of *B. pyocyaneus*, which proved to be resistant to all the antibiotics tested. On the basis of these investigations in vitro, the authors come to the conclusion that the most effective antibiotic in the treatment of unspecific purulent surgical infections should probably be chloromycetin.

(IX, 4\*)

*Z. Zakładu Mikrobiologii Lekarskiej A.M. w Krakowie  
Kierownik : z II Kliniki Chirurgicznej A.M. Krakowie  
Kierownik.*

ZASOWSKI, Andrzej; DOLEZALOWA, Marta

Attempted evaluation of antibiotic sensitivity in a surgical department. Polski przegl. chir. 31 no.3:273-277 Mar 59.

1. Z. II Kliniki Chirurgicznej A.M. w Krakowie Kierownik: prof. dr  
K. Michejda z Zakładu Mikrobiologii Lekarskiej A. M. w Krakowie  
Kierownik: prof. dr Z. Prsybylkiewicz. Krakow, ul. Kopernika 21.  
(ANTIBIOTICS, ther. use,  
in surg., sensitivity tests (Pol))  
(SURGERY, OPERATIVE,  
antibiotic ther. in, sensitivity tests (Pol))

DOIŁZALOWA, Marta; ZASOWSKI, Andrzej

Sensitivity of microorganisms to antibiotics in vitro in peritonitis consecutive to appendicitis. Polski przegl. chir. 31 no.10:1093-1098 Oct 59.

1. Z Zakładu Mikrobiologii Lekarskiej A. M. w Krakowie Kierownik: prof. dr Z. Prątyłkiewicz i s II Kliniki Chirurgicznej A. M. w Krakowie Kierownik: prof. dr K. Michejda.  
(ANTIBIOTICS, pharmacol.) (APPENDICITIS, compl.)  
(PERITONITIS, microbiol.)

ZASOWSKI, Adrezej; DOLEZALOWA, Marta

Morphological changes of the appendix and postoperative course after appendectomy in relation to bacteriological picture of peritoneal effusions in peritonitis. Polski przezl. chir. 31 no.10:1099-1104 Oct 59.

1. Z II Kliniki Chirurgicznej A. M. w Krakowie Kierownik: prof. dr K. Michejda i z Zaklady Mikrobiologii Lekarskiej A. M. w Krakowie Kierownik: prof. dr Z. Przybylkiewicz.

(APPENDICITIS, compl.)(PERITONITIS, microbiol.)

DOLEZALONA, Marta; ZASOWSKI, Andrzej; PEUKER, Wojciech

Antibiotic sensitivity of microorganisms in surgical infections  
during 1957-1959. Polski tygod. lek. 16 no. 2:53-57 9 Ja '61.

1. Z Zakladu Mikrobiologii Lekarskiej A.M. w Krakowie; kierownik:  
prof. dr Zdzislaw Prsybylkiewicz i z II Kliniki Chirurgicznej A.M.  
w Krakowie; kierownik: doc. dr med. J. Ossacki.  
(ANTIBIOTICS pharmacol)



DOLEZALOWA, Marta; PEIKER, Wojciech; ZASOWSKI, Andrzej; ZONTEK, Franciszek

Relationship between microbial resistance to antibiotics and patient's age and sex. Pol. tyg. lek. 17 no.27:1063-1065 2 J1 '62.

1. Z Zakładu Mikrobiologii Lekarskiej AM w Krakowie; kierownik: prof. dr Z. Przybylkiewicz, z Kliniki Chorob Zakaźnych AM w Krakowie; kierownik: prof. dr. Wł. Fejkiel i z II Kliniki Chirurgicznej AM w Krakowie; kierownik: prof. dr J. Oszacki.

(DRUG RESISTANCE MICROBIAL) (ANTIBIOTICS)

DOLEZALOWA, Marta; ZASOWSKI, Andrzej

Sensitivity of *Staphylococcus aureus* in vitro to erythromycin, oleandomycin triacetate and novobiocin in suppurative surgical diseases. Polski przegl. chir. 34 no.2:131-136 '62.

1. Z Kliniki Chorob Zakaźnych AM w Krakowie Kierownik: prof. dr W. Fejkiel i z II Kliniki Chirurgicznej AM w Krakowie Kierownik: prof. dr J. Oszacki.

(STAPHYLOCOCCUS pharmacol)  
(ANTIBIOTICS pharmacol)

(ERYTHROMYCIN pharmacol)  
(NOVOBIOGIN pharmacol)

POLAND

ZASOWSKI, Andrzej, DOLEZALOWA, Marta, PEIKER, Wojciech, and ZGORNIAK-NOWOSIELSKA, Izabela; Second Surgical Clinic (II Klinika Chirurgiczna) (Director: Prof. Dr. J. OSZACKI), Bacteriology Laboratory (Pracownia Bakteriologiczna) of the Clinic of Infectious Diseases (Klinika Chorob Zakaznych) (Director: Prof. Dr. WL. FEJKIEL), and the Department of Medical Microbiology (Zaklad Mikrobiologii Lekarskiej) (Director: Prof. Dr. Z. PRZYBYLKIEWICZ), all of the AM [Akademia Medyczna, Medical Academy] in Krakow

"Routine In Vitro Determination of the Effect of Antibiotic Combinations."

Warsaw, Polski Tygodnik Lekarski, Vol 18, No 15, 8 Apr 63, pp 551-555.

Abstract: [Authors' English summary modified] In studying the effect in vitro of antibiotic combinations on surgical infections, the authors could not establish any correlation either with the antibiotics or bacterial strains, and recommend individual assays in vitro prior to use in therapy, using the paper strips method. Of the 17 references, two (2) each are Polish and German, one French, and 12 English.]  
1/1

DOLEZEL, B.

"Microbial corrosion" by R. Blahnik, V. Zanovi. Reviewed  
by B. Dolezel. Jaderna energie 10 no. 2:70 P '64.

DOLÉZIL, B.; KUCERA, M.

Development of research on medicinal plants. Cesk. farm. 3 no.5:

160-162 My '54.

(PLANTS,

\*pharmacognosy, develop. of research in Czech.)

DOLEZEL, B.; RAKUSAN, B.; URBANIK, G.; VYSTROIL, A.; ZICHA, K.; ZICHA, O.

Retisin, a new tissue preparation. Cask. farm. 3 no. 7:246-247  
Sept 54.

1. Z Vyskumného ústavu léčivých rostlin v Praze.  
(TISSUE EXTRACTS,  
retisin)

DOLEZEL, B.

URBANEK, Gabriel; DOLEZEL, Bedrich; RAKUSAN, Bohumir; VYSTECIL, Alois;  
ZICHA, Karel; ZICHA, Osvald, Kolektiv RTN; LUNDOVA, Anna, MUDr,  
asistent I. gynekologické kliniky prof. Dr. Klause

Therapy of chronic gynecological diseases with the tissue prepara-  
tion Floristen mite (RTN 118) Cas. lek. cesk. 93 no.49:1352-1354  
3 Dec 54.

1. Z vyskumneho ustavu lecivych rostlin, s II. interni kliniky prof.  
Dr. Vancury a s I. gynekologické kliniky prof. Dr. Klause v Praze  
(PLANTS, therapeutic use

Hypericum perforatum extract in inflammatory gynecol. dis.)  
(GYNECOLOGICAL DISEASES, therapy  
Hypericum perforatum extract)

BRETISLAV DOLEZEL

Czechoslovakia/ Chemistry of High-Molecular Substances

F.

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11910

Author : Dolezel Bretislav

Title : Microscopic Investigation of Diffusion of Aqueous Solutions of Acids and Alkalies into Polycaprolactam

Orig Pub : Mikroskopické sledování difuze vodných roztoků kyselin a zásad polykaprolaktamem. Chem. průmysl, 1956, 6, No 7, 281-283 (Czech; Russian and English summaries)

Abstract : A procedure has been worked out for a microscopic investigation of the diffusion of aqueous solutions of acids and alkalies into polycaprolactam, which makes it possible to determine the optimal thickness of protective polyimide films. From the results thus obtained have been calculated the coefficient of diffusion (D) of 0.1 N solution of  $H_2SO_4$  into polycaprolactam, and the energy of activation of this process.

$D = 12.7 \exp(-13450/RT) \text{ cm}^2/\text{sec}.$

Card 1/1



Dolezel, Bratislava

Notes  
 ✓ Absorption of water and aqueous solutions in poly(vinyl chloride) and polypropylene. Dolezel and Degnar. Chem. Průmysl 9, 100 (1965). The sorption of water and aqueous solutions by poly(vinyl chloride) and polypropylene was found to be described by a developed math. formula, by which the life expectancy of these plastics in the said media can be calculated. The mechanism of sorption and its dependence on change of position and on internal stresses in poly(vinyl chloride) and other amorphous plastics is explained from the dependence curve of diffusion and permeability constant. In case of polyamide an additional factor is the increasing crystallinity during the exposure period. The changes in crystallinity were experimentally detected and by this some faults of polyamides in corrosive media are explained. It was found that polypropylene can resist effectively some ions from the soil. I. A. II.

4  
 4E2C  
 4E4;  
 2MAY

Rm MT

characterized by the rate of polymerization. The rate of polymerization is affected by diffusion processes of the monomer and the rate of the reaction. The dependence of the kinetics of hydrolysis on pH and temperature was studied. At pH 7.0, the hydrolysis proceeds mainly in the amorphous phase, whereas the crystalline phase is characterized by a higher  $p_i$ , which was considered by an Arrhenius equation. The processes are a first order in acid catalysis. The kinetics of the hydrolysis is affected by the pH. With the decrease in pH the hydrolysis increases. In the alkaline area the dependence of the velocity constant on the pH is experimental and the reaction velocity at pH 10 to 14 is almost constant. The rate of polymerization of the polymer are essentially described by a first order kinetic of hydrolysis. A relation is given by which from a single measurement of the degree of hydrolysis the extent of degradation can be computed. The resistance of capillary against a solution of acids and bases can be measured to enable by an analysis of  $H^+$ , which increases the rate of degradation.

A. A. Helsen

DOLEZEL, BRETISLAV

CZECHOSLOVAKIA/Chemistry of High Molecular Substances.

I

Abs Jour : Ref Zhur - Khimiya, No 7, 1958, 23671

Author : Bretislav Dolezel

Inst :

Title : Microscopic Study of Diffusion of Aqueous Solutions of  
Acids and Bases through Polycaprolactam.

Orig Pub : Chem. promysl, 1957, 7, No 8, 447-452

Abstract : A method of microscopic study of the diffusion of aqueous solutions of acids and bases into polycaprolactam is suggested. The method is based on the measurement of the coloration of polycaprolactam colored with a suitable indicator. The diffusion factors and the activation energies were evaluated for 0.1, 0.5 and 1 n. solutions of hydrochloric and sulfuric acids, for 0.1 n. solution of acetic and citric acids and for 1 n. solution of NaOH. It is shown that the activation energy changes together with the change of the composition of the diffusing

Card 1/2

COUNTRY : CZECHOSLOVAKIA H  
 CATEGORY : Chemical Technology. Chemical Products and  
 Their Applications. Synthetic Polymers.\*  
 ABS. JOUR. : RZKhim., No. 23 1959, No. 84039  
 AUTHOR : Dolezel, B.  
 INST. :  
 TITLE : Effect of Sulfuric, Nitric and Hydrochloric  
 Acids on the Non-Plasticized Polyvinylchloride  
 ORIG. PUB. : Chem. promysl, 1958, 9, No 10, 554-558  
 ABSTRACT : Samples of polyvinylchloride (I) (with 2% of  
 lead stearate), measuring  $30 \times 80 \times 3$  mm, were  
 placed in a vessel, containing 75 ml of acid,  
 and after a definite time interval were weighed,  
 thus determining differences in weight  
 of the samples. It was found, that "m" - quantity  
 of a substance, absorbed by the samples  
 during "t" time, and "m", -quantity of a substance,  
 consumed in "t" time are related to  
 each other in the following way:  $\lg m = K(\lg t - \lg t_1) + \lg m_1$ , where K is a constant.  
 \*Plastics.  
 CARD: 1/3

H - 127

COUNTRY :  
CATEGORY :

H

ABS. JOUR. : RZKHIM, No. 23 1959, No. 84033

AUTHOR :  
INST. :  
TITLE :

ORIG. PUB. :

ABSTRACT : It has been also found that the change of sam-  
Con'd ples' weight, immersed into sulfuric acid, de-  
creases with increased concentration of the  
acid. With a 50% or higher acid concentrations  
the destruction of polymer begins, that proceeds  
at a noticeable rate only at temperatures  $> 100^\circ$   
A dilute sulfuric acid does not affect mecha-  
nical properties of I; concentrated acid - in-  
creases tensile strength and hardens, while  
elongation of the material decreases. In the  
action of nitric acid, quantity of the absor-  
bed substances increases with time and

CARD: 2/3

COUNTRY :  
 CATEGORY : II  
 ABST. JOUR. : RZKham., No. 23 1959, No. 24039  
 AUTHOR :  
 INST. :  
 FIELD :  
 ORG. PUB. :  
 ABSTRACT : temperature and decreases with increased con-  
 Con'd centration of the acid. A concentrated acid  
 causes lowering of the molecular weight of I  
 and breaking off of hydrogen chloride. After  
 90 days immersion in a 40% nitric acid at 20  
 and 40°, hardening of the samples was noted  
 respectively by 10 and 20% and decrease of  
 the samples' elongation upon stretching. Its  
 tensile strength was practically unaffected.  
 Hydrochloric acid has no noticeable effect on  
 the mechanical properties of I, even at high  
 concentrations. -- L. Sedov.  
 CARD: 3/3

H - 128

DOLEZEL, BRETI SLAY

15 10  
Resistance of plastics to atmospheric corrosion. Breti-  
slay (Dolezel). *Korosi a ochrana materialu* 3, 59-62 (1958).  
The degree of degradation of plastic materials is dependent  
on their compn., the intensity and wavelength of light rays,  
and the atm. conditions of the area. The main causes of  
degradation are photochem. destruction of plastic materials  
and the photochemically activated oxids. of the macromols.  
The rate of degradation is greater in rural than in industrial  
areas, where a considerable part of the ultraviolet rays are  
absorbed by atm. impurities. The behavior of the more  
frequently encountered plastic materials under different  
atm. conditions are listed. F. H. Lieben

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4E2C(j)  
1-84 (W)  
4E2C(v)  
4E2C  
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CAT

DOLEZEL, B.

Z/009/60/000/07/030/011  
E112/E453

AUTHOR: Břetislav Doležel and Jiří Štěpek

TITLE: Contribution to the Thermal and Optical Breakdown of Polyvinyl Chloride and its Co-Polymers

PERIODICAL: Chemický Průmysl, 1960, Nr 7, pp 381-386

ABSTRACT: The authors present a study of the effect of heat, light and gaseous medium upon the breakdown of polyvinyl chloride and its co-polymers with vinylidene chloride and vinyl acetate, respectively. The degradation of the polymers is accompanied by a splitting off of hydrochloric acid, discolouration, fission of the macromolecules and their cross linkings. The mechanism and the ensuing effects of thermal and optical degradations are different. The initial stages of the thermal breakdown of polyvinyl chloride have not yet been fully elucidated. It has been established that it is accelerated by oxygen and polymerization catalysts. The question whether the split off HCl acts as autocatalyst, has not yet been answered satisfactorily. The thermal degradation causes an intense discolouration but very little change of mechanical properties. The photochemical degradation, on the other hand, reduces the strength and

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06/13/2000/07/038/000  
E112/E453

Contribution to the Thermal and Optical Breakdown of Polyvinyl Chloride and its Co-Polymers

flexibility and increases brittleness. The main process taking place during photochemical breakdown is an oxidation, the primary step of which is the splitting off of hydrochloric acid. The authors point out that on thermodynamic considerations, light of a wavelength of 2200 to 2300 Å has sufficient energy for the fission of the C-Cl and C-H bonds. The presence of carbonyl groups or other structural irregularities will shift the absorption to the visible part of the spectrum and thus accelerate photochemical breakdown of polyvinyl chloride. The authors practical and experimental contributions to the study of the problem were as follows: The thermal and photochemical degradation of emulsion and suspension-polymerized vinyl chloride and its co-polymers with vinylidene chloride 90/10 and the co-polymer with vinyl acetate 87/13 in oxygen, ozone and nitrogen, were followed and compared experimentally. A: The thermal destruction was studied by following the course of splitting off of HCl, by determining the amount of

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Z/009/60/000/07/036/040  
E112/E453

Contribution to the Thermal and Optical Breakdown of Polyvinyl Chloride and its Co-Polymers

insoluble compounds formed during the degradation, by measuring the change of viscosity and index of swelling. B: The photochemical degradation was measured on foils of the polymers placed in quartz tubes and irradiated with ultra violet light. The split-off HCl was absorbed in a caustic soda solution and determined by potentiometric titration with silver nitrate. Procedure for the different determinations are given in details. The following results are given: A linear relationship exists between the amounts of split-off HCl from polyvinyl chloride and its co-polymers in an atmosphere of nitrogen, oxygen and ozone. In an atmosphere of oxygen and ozone, the breakdown of polyvinyl chloride is more rapid than under nitrogen. Suspension polyvinyl chloride is more liable to thermal breakdown than the emulsion-polymer. The speed of breakdown by heat of the co-polymers of vinyl chloride with vinylidene chloride is eighteen times greater than that of polyvinyl chloride. However, the breakdown of

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7/11/80/000/07/030/011  
E112/E453

Contribution to the Thermal and Optical Breakdown of Polyvinyl Chloride and its Co-Polymers

the co-polymer of vinylchloride with vinyl acetate is considerably smaller and approaches that of the suspension-polyvinyl chloride. The speed of formation of insoluble fractions in an atmosphere of nitrogen is greater in the case of vinyl chloride-vinylidene chloride than of pure polyvinyl chloride. The relationship between amount of split-off hydrochloric acid and time of irradiation with ultraviolet light was found to be linear with all tested polymers. The resistance to photochemical degradation decreases in the order: Polyvinyl chloride, co-polymer from vinyl chloride and vinylidene chloride. The discolouration of the resins by ultra violet light is slower than during a thermal breakdown and is masked by the oxidation of conjugated double bonds, which in its turn leads to a discolouration. There are 11 figures and 17 references, 11 of which are English, 1 Czech, 3 Soviet and 2 German.


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Z/009/60/000/07/038/046  
E112/E453

Contribution to the Thermal and Optical Breakdown of Polyvinyl  
Chloride and its Co-Polymers

ASSOCIATIONS: Výzkumný ústav ochrany materiálu, Praha  
(Research Institute for the Protection of Materials, Prague)  
Vysoká škola chemicko-technologická, Praha  
(College of Technical Technology, Prague)

SUBMITTED: March 5, 1959



Card 5/5

89414

Z/030/60/000/012/003/005  
A121/A026

IS 8100

AUTHOR: Doležel, B., Engineer

TITLE: Resistance of Plastics to Outside Influence

PERIODICAL: Jemná Mechanika a Optika, 1960, No. 12, pp. 374 - 377

TEXT: The author deals with the destruction of plastics by physical, physico-chemical and biological factors. Dealing with mechanical destruction the author mentions the corrosion at simultaneous mechanical stress causing cracks, which depend on the magnitude and the direction of stress, on the inner stress, on the ratio of amorphous and crystalline portions, on the molecular weight, the chemical composition of ambient-media, on the temperature and on the time of influencing. This affinity to corrosion may be avoided by heat treatment or, for example, by addition of 5% polyisobutylene to polyethylene. The main cause of atmospheric corrosion is a photochemical destruction or a photochemically activated oxidation. If, e.g., a plastic material absorbs a radiation quantum of 3,130 Å wave length, 91 kcal/mol energy become fed to the material, destroying the C-C bond. The atmospheric influence on plastics is described. Polyethylene becomes hard and cracky when exposed to light; pigmented by 1 - 2% activated soot, its durability increases to 20 years.

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89411

Z/030/60/000/012/003/005

A121/A226

Resistance of Plastics to Outside Influence

Polystyrene resists atmospheric influences except sun radiation; a protection is possible by a coating which absorbs ultraviolet rays (durability 3 years) or by pigmented painting with soot or aluminum dust (durability 6 years). Polyvinyl chloride gives off hydrochloric acid; the ductility of a non-softened PVC-foil decreases after 6 months by 50%. Suitable stabilizers have to bond hydrochloric acid to absorb ultraviolet rays and to increase the anti-oxidation properties. Recommended are alkaline lead salts and manganese salts (less than 1%). Polyethylene terephthalate shows higher resistance; the stability decreases after 6 months by 20% (at polyamide by 80%). By addition of lead oxide or of triphenyl stercorite, a stabilization is possible. Polyester glass laminates, based on polyester styrene resins, have a high resistivity; the tensile strength decreased within 1 year from 2,810 to 2,630 kg/cm<sup>2</sup>, the bending strength from 1,820 to 1,710 kg/cm<sup>2</sup> and the impact strength from 300 to 260 kg/cm<sup>2</sup>. By addition of organic compounds (for example of o-hydroxy benzophenone) the yellowish tinge may be decreased. High-grade radiation of plastics causes destructions to be classified into two groups: the first one showing a trend to netting (polystyrene, polyester, polyethylene, etc) changes its properties and becomes decomposed after an additional radiation; the second group decomposes immediately (polymethyl methacrylate, PVC, polyvinylidene chloride, polytetrafluoro ethylene, polytrifluoro chloro ethylene, cellulose, polyisobutylene,

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Z/030/60/000/012/003/005  
A121/A026

Resistance of Plastics to Outside Influence

polypropylene). Significant are the changes by loss of softening agents occurring in evaporation, by migration of softener contacting solid materials, by lixiviation of softener and its reaction with ambient-media. These damages may be avoided by the use of polymeric softeners. In physico-chemical or chemical sense a classification of outside influence into three groups is possible: 1) Diffusion quantifiable according to the laws of Ficko; 2) swelling, whereby the foreign substance penetrates to the mass removing the macromolecular chains; 3) direct chemical reactions between the ambient-medium and the plastic material. Biological corrosion is caused by molds, processes of putrefaction etc. Softened PVC, polyamide, polyvinyl acetate, cellulose derivatives, etc, are especially subjected to biological corrosion. There is 1 table.

ASSOCIATION: SVÚOM, Praha (SVÚOM, Prague)

SUBMITTED: May 26, 1960

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Z/009/61/000/002/007/008  
E112/E453

AUTHOR: Doležel, Břetislav

TITLE: Corrosion Resistance of Unplasticized Polyvinylchlorides

PERIODICAL: Chemický průmysl, 1961, No.2, pp.106-109

TEXT: The physical properties of polyvinylchloride can be considerably modified by the addition of low or high molecular-weight plasticizers. Change of physical characteristics may be accompanied by a change of resistance towards corrosive chemicals and the atmosphere. Small additions of plasticizers may change the resistance fundamentally, depending also on their chemical structure. Polyvinylchlorides, modified by the addition of chlorinated polyethylene, have been recently developed and marketed by Farbwerke Hoechst, under the name of Hostalit Z, for which better mechanical properties, particularly at low temperatures, are claimed. The author has compared Hostalit Z with unplasticized polyvinylchloride with respect to corrosion resistance and submits the results. Resistance to the action of the following chemicals was tested: 100% acetic acid, 96% sulphuric acid, 40% nitric acid, 20% caustic soda all at 20, 40 and 60°C, and also distilled water. The tested specimens were  
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Corrosion Resistance of ...

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immersed for 32 days into the specified reagents and their action assessed by: 1. determining loss of weight; 2. change in tensile strength and 3. change of extensibility. Results: the different reagents cause swelling of the polyvinyl chlorides. Generally, at 20 and 40°C, the difference between the two products was negligible. At 60°C, however, Hostalit Z was slightly superior. Tensile strength test showed both materials to be equivalent after the action of the corrosive reagents. Extensibility was lower for both materials during the tests, the greatest effect being exerted by sulphuric acid at 60°C. It is concluded that both types of polyvinylchloride display practically the same resistance to corrosive liquids. Measurements of the test-specimens are given. There are 1 figure, 4 tables and 2 references: 1 Czech and 1 non-Czech. ✓

ASSOCIATION: Státní výzkumný ústav ochrany materiálu, Praha  
(State Research Institute for Protective Coatings  
Prague)

SUBMITTED. July 26, 1960

Card 2/2

21943

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also 1372

Z/038/61/000/005/002/003  
D241/D302

AUTHOR: Doležel, Břetislav

TITLE: The effect of ionizing radiation on polymers

PERIODICAL: Jaderná energie, no. 5, 1961, 151 - 157

TEXT: This work surveys literature published to the end of 1958 on the effects of ionizing radiation on most of the important polymers, the changes in chemical composition and in physical characteristics. It is to be continued. It has been known for some time that polymers, and especially natural rubber undergo certain changes under the influence of radiation. Charlesby, Lawton and others divided polymers into two main groups according to their behavior under ionizing radiation. Group 1 improves and the molecular weight increases, and Group 2 is degraded and the molecular weight decreases. The published tables, the author points out, are not too precise, as it is possible under given conditions for a polymer to move from Group 1 to Group 2, e.g. under the influence of the presence of

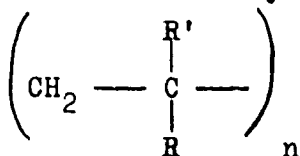
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The effect of ionizing ...

Z/038/61/000/005/002/003  
D241/D302

oxygen. It was found that all vinylic polymers that can be degraded have essentially the following structure. X



where R is hydrogen, R' may be CH<sub>3</sub>, Cl, F etc.

Polyvinylchloride is one of these polymers. As regards the influence of radiation on polyethylene, it can be in several forms, according to the method of manufacture as shown in Fig. 1. This has a great influence on the mechanical properties. In the reactor, polyethylene changes its weight, showing that chemical changes take place, causing physical changes. It is known that the chemical changes brought about by radiation are much simpler in the case of the lower hydrocarbons than in the case of higher paraffines and polyethylene. It has been shown that the theory of equal valences is

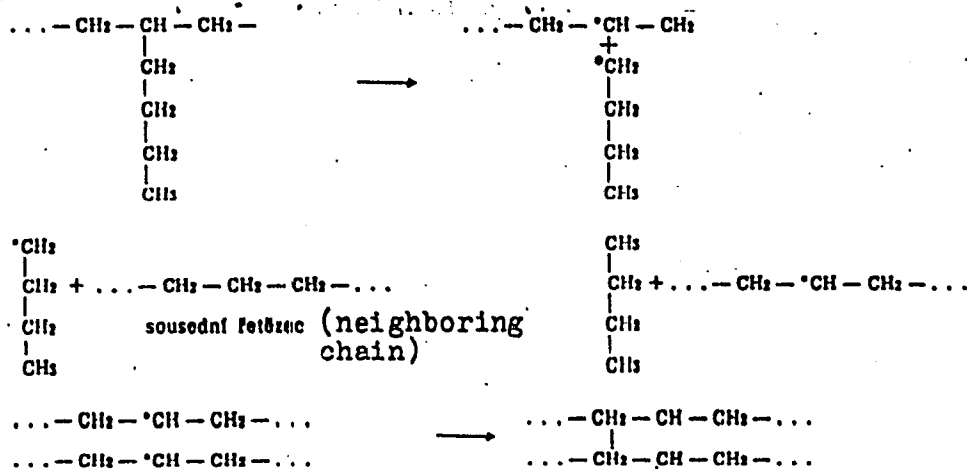
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D241/D302

The effect of ionizing ...

not correct for the higher hydrocarbons. The reactions with neighboring groups are shown as follows:



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The effect of ionizing ...

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The degree of oxidation depends on the amount of oxygen present in the polymer. It has been proved that the oxygen penetrates thin samples in higher quantities than it does thick samples. The distribution of oxygen depends on two factors: 1) The diffusion of the oxygen and speed of formation of carbonyl groups; 2) The activity of the groups reacting with the oxygen. The chemical effect function

$$Q = \frac{\log (T_0/T)}{L.Mr}$$

gives the function of the chemical changes, depending on the thickness, where  $T_0$  = light penetration of original sample,  $T$  = light penetration of the irradiated sample (at  $1720 \text{ cm}^{-1}$ ),  $L$  = thickness in mm,  $Mr$  = dose of irradiation (in million Röntgen). Fig. 3 shows the relation between  $Q$  and thickness. These chemical changes have a great influence on the physical properties of polyethylene. In addition the article shows graphically the influence on Young's mo-

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The effect of ionizing ...

dulus [Abstractor's note: The full lines are the results of dynamic measurement, the broken lines are static measurements], the influence of temperature on Young's modulus, the results of different doses, the results of irradiation on strength ( $\text{kg/mm}^2$ ), and the effect on elongation. [Abstractor's note: Technical editor for this article is G. Kaplan]. There are 4 tables and 7 figures.

ASSOCIATION: Státní výzkumný ústav ochrany materiálu G.V. Akimova, Praha (State Research Institute for Material Protection, Prague)

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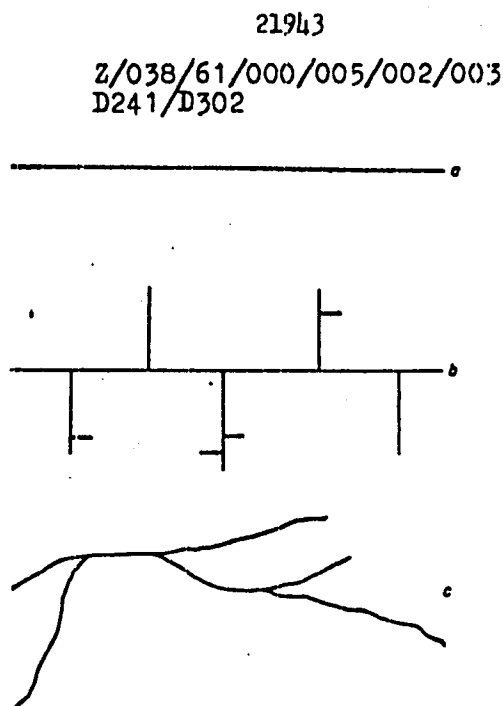
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The effect of ionizing ...

Fig. 1.

a. linear, b. linear with short links, c. non-linear with long links.

Fig. 1.



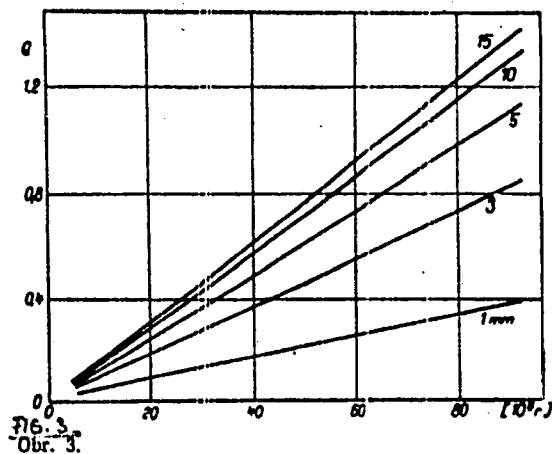
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The effect of ionizing ...

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Fig. 3



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Z/038/61/000/006/001/002  
D235/D304

AUTHOR: Doležel, Břetislav

TITLE: Influence of ionizing radiation on polymers II

PERIODICAL: Jaderná energie, no. 6, 1961, 196 - 204

TEXT: This is the second part of an article presenting a review of data on the influence of ionizing radiation on polymers as contained in technical literature published until the end of 1958. In this part the following polymers are dealt with: (1) Polyisobutylene undergoes splitting when exposed to radiation. This effect can be explained by the weakening of the bond between carbons due to the effect of methyl groups. Experiments have shown that two double-bonds are formed for each split carbon bond. (2) Polystyrene is more resistant to radiation due to the presence of the phenyl group. When exposed to radiation, it forms a spatial structure. For a polymer with an initial  $M_w$  of 1,150,000 the critical dose for gel formation was found to be  $R = 10.3$  megarep. The mole-

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Influence of ionizing ...

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cular weight rises sharply as the critical value is being approached. Radiation-induced changes of the physical properties are small compared to other polymers. At exposure to  $13 \cdot 10^{18}$  nvt (= 5850 megarep) only a slight increase of the elasticity modulus and a slight decrease of tensile strength and elongation were found.

(3) Polytetrafluoroethylene decomposes at a dose of 450 megarep to  $\text{CF}_4$ , free fluorine and a carbonaceous powder. Mechanical properties are affected by both gamma and beta radiations. At a dose of  $10^{17}$  nvt (about 50 megarep) its tensile strength decreases to about 50 % of the original value and reaches zero at 3 to  $5 \cdot 10^{17}$  nvt. (4) Polychlorotrifluoroethylene is subject to degradation when exposed to radiation. Fluorine and chlorine split off. A dose of about 200 Mr reduces the impact strength to 20 % of the original value. (5) Polyvinyl chloride (PVC) undergoes considerable chemical changes due to ionizing radiation. First of all, hydrogen chloride is split off. A gamma radiation dose of  $10^3$  megarep provokes splitting-off of 7 millimols HCl from 1 gram of polymer.

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(Some authors suggested using this property of PVC for dosimetric purposes). This effect is accompanied by the formation of double-bonds and cross-linking. The color changes from colorless to yellow, to red, and eventually to black. B.L. Tsetlin et al. (Ref. 46: *Deystviye ioniziruyushchikh izlucheniya na neorganicheskiye i organicheskiye sistemy* (Effects of Ionizing Radiation on Inorganic and Organic Systems) Izd. AN SSSR, Moskva, p. 354) investigated the changes of the characteristics of thermomechanical curves and the changes of elongation of PVC exposed to various radiation doses. As can be seen from Fig. 10, the pattern of the thermo-mechanical curves changes already after low radiation doses. These changes can be observed until a dose of  $10^{21}$  ev/cm<sup>3</sup>. Further dose increases do not influence the curve pattern. The most important conclusion from this effect is that the transition region of PVC from the vitreous to the highly-elastic state (80 - 90°C) is not affected by radiation. The curve pattern also reveals that radiation provokes cross-linking of PVC. From the load-versus-elonga-

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tion curves, shown in Fig. 11, it can be concluded that: (a) the limit of enforced elasticity is slightly reduced and (b) the elongation at rupture decreases sharply. This can be explained by the formation of "microdefects" originating in PVC after splitting-off of hydrogen chloride. These microdefects also increase the gas permeability of PVC. The elongation increases with increasing temperatures which is probably due to a very regular distribution of cross-links. Flexural strength decreases from 927 at 0 ev/cm<sup>3</sup> to 418 at 9.4 ev/cm<sup>3</sup> · 10<sup>-21</sup>. The presence of plasticizers reduces the number of cross-links and, consequently, the changes of mechanical properties. Test showed that PVC softened with tritolyl phosphate is least susceptible to radiation. The effect of plasticizers is probably due to their reaction with the polymer radical. Polymers of vinylidene chloride display the same behavior as PVC. (6) Polymethyl methacrylate degrades when exposed to radiation. Radiation provokes a reduction of molecular weight and splitting-off of gaseous products which were found to have the following

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chemical composition: 44.1 % H<sub>2</sub>; 6 % CH<sub>4</sub>; 22.8 % CO; 18.8 % CO<sub>2</sub>; 0.3 % O<sub>2</sub>; and 0.2 % hydrocarbons. Decomposition occurs at a dose as low as 1 Mr and is considerably accelerated by the presence of oxygen. It was found, however, that an addition to the polymer of about 10 % of alkyl thiourea, di-m-tolyl thiourea, aniline, 8-hydroxyquinoline, or benzoquinone considerably reduces the destruction. Also physical properties change substantially at comparatively low doses. Tensile strength, elongation and impact strength decrease to zero at a dose of 0.1 - 1 · 10<sup>18</sup> nvt (50-500 megarep). B.L. Tsetlin (Ref. 62: Deystviye ioniziruyushchikh izlucheniya na neorganicheskiye i organicheskiye sistemy (Effects of Ionizing Radiation on Inorganic and Organic Systems), Izd. AN SSSR, Moskva, 1958, p. 362) found that the transition region from the viscous-elastic state to the viscous-liquid state drops sharply with an increasing radiation dose. This proves that radiation causes splitting of the polymer's main chains. Fast electrons provoke the formation of surface cracks which eventually grow at a rate of about

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Influence of ionizing ...

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6 cm/min at a dose rate of  $2 \cdot 10^{18}$  ev/cm<sup>3</sup> sec. (7) Little is known as yet about the radiation resistance of polyacrylonitrile and its copolymers. It was found that its tensile strength decreases to two-thirds of the original value after a dose of 10 Mr. (8) Polyvinyl formal and polyvinyl butyral are not too resistant to radiation. The former changes its mechanical properties at a dose of about  $5 \cdot 10^{18}$  nvt and the latter at a dose of  $0.6 \cdot 10^{18}$  nvt. (9) Irradiation in the presence of oxygen of polycarbonates provokes increased formation of carbonyl, carboxyl and hydroxyl groups with simultaneous splitting of the polymer chain. While the mechanical properties improve slightly at an initial dose of  $5 \cdot 10^6$  r, the degradation increases with the increasing dose and the polymer becomes very brittle at a dose of about  $3 \cdot 10^8$  r. It was also found that oxidation does not essentially contribute to radiation damage. (10) Polyamides (nylon "66" or polycaprolactam) form cross-links when exposed to radiation. In nylon "66" radiation causes a decrease of crystallinity and at a dose of  $10^{19}$  nvt

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Influence of ionizing ...

the crystalline phase is reduced to zero. Irradiated nylon dissolves in formic acid containing 5 % hydrochloric acid. After precipitation in water, it regains its original properties. The modulus of elasticity and tensile strength increase under radiation while elongation and impact strength decrease. Tests with polycaprolactam showed that doses below 30 megarep do not provoke cross-linking of the polymer. However, at doses above 40 megarep a rapid formation of gel takes place. (11) Polyesters, especially those of the polyethylene-terephthalate type, are much more resistant to radiation than the low-molecular esters. A noticeable decrease of tensile strength and elongation takes place at a dose of  $10^{18}$  nvt. At a dose of  $1.5 \cdot 10^{18}$  nvt, tensile strength decreases to zero. The crystalline phase is not affected by radiation which indicates that no, or negligible, cross-linking takes place. When irradiated in an inert atmosphere, an increase of -COOH- groups can be observed, while an increase of CH and C = O groups takes place in the presence of oxygen. Infrared spectroscopy revealed that a dose

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of  $10^8$  r does not cause any structural changes. The benzene ring of polyethylene terephthalate increases the radiation resistance of this polymer. Tensile strength and elongation decrease with the increasing radiation dose. The presence of oxygen has no substantial influence on the changes of mechanical properties. (12) Phenol-formaldehyde resins have a poor resistance to radiation. Fillers, especially inorganic ones, increase the resistance somewhat. Aniline-formaldehyde resins have a better resistance and their mechanical properties do not change even at a dose of  $10^{20}$  nvt. Urea and melamine-formaldehyde resins have about the same resistance as phenol-formaldehyde resins. (13) Epoxy resins have a very good resistance to radiation. Epoxy bonds between metals retain their strength even at doses of  $1 - 4 \cdot 10^6$  r. (14) Silicone rubber undergoes vulcanization when exposed to radiation. Optimum properties were obtained with a dose of 2 megarep. Tensile strength increased to  $31.9 \text{ kg/cm}^2$  and elongation 420 %. Further dose increases reduce the tensile strength which reaches zero value at a dose



Influence of ionizing ...

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of  $10^{18}$  -  $10^{19}$  nvt. (15) Natural rubber undergoes cross-linking under radiation. It was found that 1 reactor unit provokes the formation of 1.1 cross-links per every 100 isoprene units. Prolonged irradiation causes hardening and reduces elongation. Optimum properties were obtained with radiation doses between 30 and 50 megarep. (16) Butadiene mixed with 20 parts of active soot and vulcanized in the presence of sulphur behaves in a similar manner to natural rubber. Its tensile strength reaches minimum at a dose of  $0.58 \cdot 10^{18}$  nvt. (17) Polychloroprene undergoes cross-linking under radiation. About 50 % gelatinize at a dose of 1.5 megarep and at 100 megarep its mechanical properties are reduced to a minimum. (18) The opinions about the radiation-induced changes of Thiokol differ. Some authors found that Thiokol degrades, while others found that it undergoes cross-linking. Its mechanical properties are reduced to a minimum by a dose of  $10^{18}$  nvt. [Abstractor's note: The technical editor for this article is G. Kaplan.] There are 16 figures, 15 tables and 98 references: 4 Soviet-bloc and 94 non-Soviet-bloc. The four most recent references to English

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Influence of ionizing ...

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D235/D304

language publications read as follows: R. Harrington, R. Giberson, Modern Plastics, 36, 1958, no. 3, 199; H. Wells, I. Williamson, AERE 2518, 1958; A. Shinohara, A/Conf. 15/P/1346, June 1958; T.G. Majury, S.H. Pinner, J. Appl. Chem. 8, 1958, 171.

ASSOCIATION: Státní výzkumný ústav ochrany materiálu G.V. Akimova, Praha (G.V. Akimov State Research Institute of Material Protection, Prague)

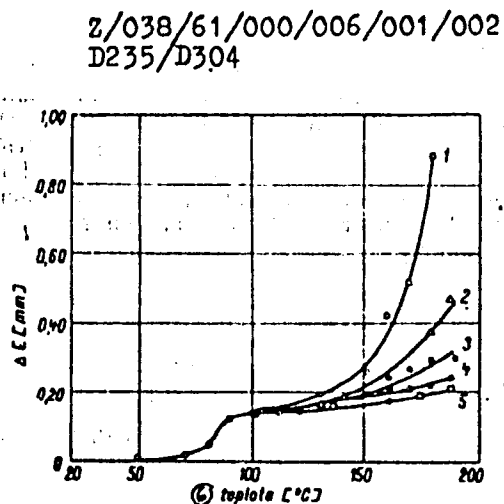
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Influence of ionizing ...

Fig. 10. Thermomechanical curves of polyvinyl chloride in dependence on radiation dose.

Legend: Doses: 1 = 0; 2 =  $2 \cdot 10^{20}$ ; 3 =  $5 \cdot 10^{20}$ ; 4 =  $3 \cdot 10^{21}$ ; 5 =  $8 \cdot 10^{21}$  ev/cm<sup>2</sup>; 6 = temperature (°C).

Fig. 10.



Obr. 10. Termomechanické křivky polyvinylchloridu v závislosti na dávce záření  
Dávky ① - 0, ② -  $2 \cdot 10^{20}$ , ③ -  $5 \cdot 10^{20}$ , ④ -  $3 \cdot 10^{21}$ , ⑤ -  $8 \cdot 10^{21}$  ev/cm<sup>2</sup>.

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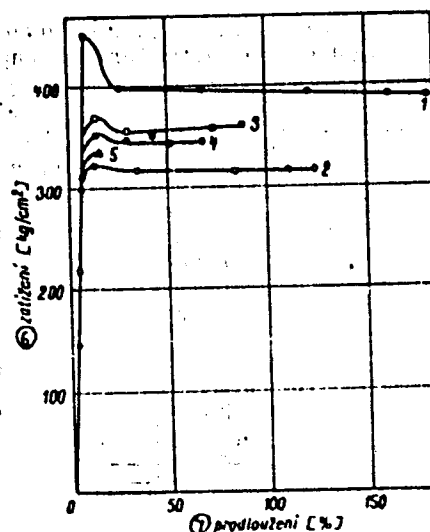
Influence of ionizing ...

Fig. 11. Load versus elongation curves of polyvinyl chloride at 20°C in dependence on radiation dose.

Legend: 1 = 0; 2 =  $2 \cdot 10^{20}$ ; 3 =  $5 \cdot 10^{20}$ ; 4 =  $5 \cdot 10^{21}$ ; 5 =  $8 \cdot 10^{21}$  ev/cm<sup>2</sup>; 6 = load (kg/cm<sup>2</sup>); 7 = elongation (%).

Fig. 11.

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D235/D304



Obr. 11. Křivka zatížení — prodloužení polyvinylchloridu při 20°C v závislosti na dávce záření  
1 — 0, 2 —  $2 \cdot 10^{20}$ , 3 —  $5 \cdot 10^{20}$ , 4 —  $5 \cdot 10^{21}$ , 5 —  $8 \cdot 10^{21}$  eV/cm<sup>2</sup>.

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Z/009/61/000/010/003/003

E112/E135

AUTHOR: Doležel, Břetislav

TITLE: Effects of small amounts of plasticizers on chemical resistance of polyvinylchloride

PERIODICAL: Chemický průmysl, No.10, 1961, pp.556-558

TEXT: It is the usual practice to add small amounts of plasticizers even to rigid polyvinylchloride resins in order to facilitate processing, such as for instance extrusion. The effect on the mechanical properties of the polymer has been the subject of careful study, but little was known about their influence on the chemical resistance. The present author deals with the action of distilled water, 80% sulphuric acid, 40% nitric acid and 20% caustic soda on domestic and foreign samples of polyvinylchloride at 20 and 40 °C respectively, over a period of 90 days. Most of the test specimens contained 5-12% conventional plasticizer, but some samples were only stabilized with stearates and were free of plasticizer. List of applied plasticizers: Dibutylphthalate, dioctylphthalate, Palatinit F, Palatinit AH, dioctyladipate, butylacetylricinoleate, tricresylphosphate, Plasticizer ED 242, Mesamol. The corrosive  
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effect of the employed chemicals was assessed from changes of tensile strength. The author arrived at the following conclusions. The presence of plasticizers or stabilizers had a considerable effect on the corrosion resistance of polyvinylchloride resins. Some of them increase the resistance, while others have the opposite effect. Results are influenced not only by concentration and composition of plasticizer or stabilizer but also by the characteristics of the PVC itself. The plasticizers will, as a rule, affect the corrosion resistance of PVC to a specific medium. Rigid PVC of a given composition will thus have optimum corrosion resistance in one medium, while in another the latter may be very poor. Greatest effect is exerted by 80% sulphuric acid and smallest by water. Results are summarised in tables, showing for each tested corrosive chemical those resin compositions which are significantly affected and those which are not significantly affected at 20 and 40 °C.

There are 8 tables and 5 references: 1 Soviet and 4 non-Soviet. The three English language references read as follows:

Card 2/3

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Effects of small amounts of .....

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E112/E135

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Ref.3: W.G. Cochran, G.M. Cox. Experimental Design,  
J. Wiley, N. York, 1956.

Ref.4: G.W. Snedecor, Statistical Methods, 4th edition, Iowa, 1946.

ASSOCIATION: Státní výzkumný ústav ochrany materiálu  
G.V. Akimova, Praha  
(State Research Institute for Material Protection  
G.V. Akimov, Prague)

SUBMITTED: July 25, 1960

Card 3/3

DOLEZEL, Bretislav

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1. Vyzkumny ustav ochrany materialu.



DOLEZEL, Bretislav

Effect of a small amount of plasticizers on atmospheric ageing resistance of the hard polyvinyl chloride. Chem prum 13 no.3: 160-165 Mr '63.

1. Statni vyzkumny ustav ochrany materialu, Praha.

CHYTRY, Vladimír; HORENÍ, Alena; DOLEŽEL, Bretislav

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1. Vysoka skola chemicko-technologicka, Praha a Statni vyzkumny  
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ELEKTROTECHNIK. (Ministerstvo strojirenstvi) Praha. Vol. 11,  
no. 5, May 1956.

Source: EEAL LC Vol. 5, No. 10 Oct. 1956

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Casting cable eyebolts for aluminum conductors using simple means.  
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Source: EEAL LC Vol. 5, No. 10 Oct. 1956

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L 31071-66 EWP(k)/EWP(h)/EWP(l)/EWP(v)

ACC NR: AP6022546

SOURCE CODE: CZ/0031/66/014/002/0111/0113

AUTHOR: Jiricka, Zdenek--Yirzhichka, Z. (Engineer); Dolezel, Jindrich--Dolozhel, Y.

ORG: Adamov machine works, n.p., Adamov (Adamovske strojirny)

TITLE: Expedient modernization of the SUK-63 lathe for triple threading

SOURCE: Strojirenska vyroba, v. 14, no. 2, 1966, 111-113

TOPIC TAGS: lathe, threading machine/ SUK 63 lathe

ABSTRACT: The article shows the possibilities of increasing labor productivity and improving precision under conditions of small-series production by describing the modernization of the SUK-63 lathe, which can be done along with a complex solution of the production process. Most of the described elements have a universal application. Orig. art. has: 6 figures. JPRS

SUB CODE: 13/ SUBM DATE: none

UDC: 621.941.22

621.9.001.5/.6

Card 1/1 CC



SCIENCE, R.

"Purification Of Illuminating Gas. (To Be Contd.)."  
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June 58.

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přirodovědecké fakulty MU, Brno. A. G., Brno, Eluty kopec 7.

(ROENTGEN RAYS,

dosimetry by means of diamonds (Cz))

(CARBON,

diamonds, use in dosimetry of x-rays (Cz))